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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/090,838	03/06/2002	Akira Tsuboyama	00684.003345	5725
5514	7590	04/06/2004	EXAMINER	
FITZPATRICK CELLA HARPER & SCINTO 30 ROCKEFELLER PLAZA NEW YORK, NY 10112			YAMNITZKY, MARIE ROSE	
			ART UNIT	PAPER NUMBER
			1774	
DATE MAILED: 04/06/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/090,838	<b>Applicant(s)</b> TSUBOYAMA ET AL.	
	<b>Examiner</b> Marie R. Yamnitzky	<b>Art Unit</b> 1774	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 22 December 2003 and 07 January 2004.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,2,5-9 and 12-14 is/are pending in the application.
- 4a) Of the above claim(s) 6 and 7 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,5,8,9 and 12-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>rec'd 07 Jan 2004</u> . | 6) <input type="checkbox"/> Other: _____  |

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1. This Office action is in response to applicant's amendment received December 22, 2003, which cancels claims 3, 4, 10 and 11, and amends claims 1 and 9.

Claims 1, 2, 5-9 and 12-14 are pending.

2. The claims remain subject to an election of species.

None of the pending claims read on the species previously provisionally elected by applicant. The examiner will continue examination of the claims with a shift in the species with respect to the definition of m and n (the previously elected species being a compound in which m is 3 and n is 0). Accordingly, previously withdrawn claims 2 and 9 are now considered.

Claims 6 and 7 stand withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to nonelected species, there being no allowable generic or linking claim. (These claims will be subject to further consideration upon the allowance of a generic or linking claim.)

3. The objection to the disclosure as set forth in the Office action mailed June 16, 2003 is overcome in part by applicant's amendment and withdrawn in part in consideration of applicant's arguments.

The rejection under 35 U.S.C. 112, 2<sup>nd</sup> paragraph, and the rejections under 35 U.S.C. 102(b) and (e) as set forth in the June 16<sup>th</sup> Office action are overcome by applicant's amendment.

The rejection under 35 U.S.C. 103(a) based on the published application of Thompson et al. is overcome by applicant's amendment.

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The obviousness-type double patenting rejection over claims in copending Application No. 10/090,836 is overcome by amendment of the present and copending claims. The present claims and the claims in the '836 application have been amended such that there is no longer any overlap between the subject matter claimed in the two applications.

New issues raised by applicant's amendment are set forth in this Office action.

4. Claims 1, 2, 5, 8, 9 and 12-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The scope of compounds represented by formula (1) is not clear because claim 1 sets forth two contradictory definitions of the substituent(s) of the cyclic groups represented by CyN1, CyN2, CyC1 and CyC2. Claim 1 defines CyN1, CyN2, CyC1 and CyC2 as cyclic groups capable of having a substituent. Claim 1 then defines "the optional substituent" of the cyclic groups; the list of possible substituents does not include an aromatic substituent. Claim 1 then recites that the cyclic groups "have at least one aromatic substituent". Clarification of the claim language is required.

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an

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international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1, 2, 8, 9 and 12-14 are rejected under 35 U.S.C. 102(e) as being anticipated by Burn et al. (WO 02/066552 A1).

This reference is available under 35 U.S.C. 102(e) with a filing date of February 20, 2002. Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

See the whole publication. In particular, see page 1, lines 4-5, p. 9, l. 7-11 and 23-24, p. 10, l. 24-p. 11, l. 28, p. 12, l. 17-p. 13, l. 13, p. 36, l. 12-p. 37, l. 10, p. 43, l. 5-15 and Figures 4 and 15.

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1, 2, 5, 8, 9 and 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Igarashi et al. (US 2001/0019782 A1).

Igarashi et al. disclose iridium coordination compounds for use as light emitting compounds in organic electroluminescent devices (e.g. see paragraph [0002]).

Igarashi et al. disclose specific compounds having two mutually different bidentate ligands. For example, see formulae (1-15), (1-41), (1-51), (1-56), (1-59), (2-9), (2-11), (2-14), (2-15), (2-17) and (2-20). The prior art compounds represented by these formulae differ from the compound as defined in present claim 1 in that the prior art compounds lack the at least one aromatic substituent required for the present claims (interpreting present claim 1 as requiring at least one aromatic substituent with the "optional substituent" referring to substituents that may be present in addition to the at least one aromatic substituent).

Igarashi et al. disclose specific compounds having a bidentate ligand having an aromatic substituent. For example, see formulae (1-12), (1-42), (1-45) and (2-6). The prior art compounds represented by formulae (1-12) and (1-42) differ from the compound as defined in present claim 1 in that these prior art compounds do not have two mutually different bidentate ligands. The prior art compounds represented by formulae (1-45) and (2-6) differ from the compound as defined in present claim 1 in that one of the two mutually different bidentate ligands of the prior art compounds is outside the scope of a ligand that provides a partial structure represented by present formula (2) or (3).

While Igarashi et al. teach that the iridium compounds may have two mutually different bidentate ligands providing partial structures of present formulae (2) and (3), and teach that a cyclic group of a bidentate ligand may be substituted with an aromatic substituent, Igarashi et al. do not disclose a specific example of a compound as defined in present claim 1.

Further with respect to present claim 5, Igarashi et al. do not disclose a specific compound of present formula (1) in which CyN1 is a pyridyl group and CyC1 is a naphthyl

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group but such compounds are within the scope of Igarashi's iridium compounds. Igarashi's compound represented by formula (1-62) is a compound having a ligand in which a pyridyl group is covalently bonded to a naphthyl group (as in present CyC1-CyN1) and the naphthyl group is substituted. The substituent in the compound of formula (1-62) is a cyano group, but Igarashi et al. teach that the metal coordination compounds may contain a variety of substituents, with aryl groups, heteroaryl groups, and a cyano group all being disclosed as suitable substituents (e.g. see paragraphs [0049]-[0050]). As noted above, Igarashi et al. disclose specific compounds wherein the cyclic groups are substituted with an aromatic substituent, but do not disclose specific compounds meeting all the limitations of the present claims.

It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to make other compounds within the scope of Igarashi's generic formulae and similar to the specific compounds disclosed by Igarashi et al. with the expectation that similar compounds would have similar properties and could be used for the purposes of the prior art. One of ordinary skill in the art at the time of the invention would have been motivated to make metal coordination compounds similar in structure to those specifically disclosed by Igarashi et al. in order to provide metal coordination compounds suitable for use in an organic electroluminescent device.

Based on Igarashi's teachings as a whole, one of ordinary skill in the art would have reasonably expected that compounds have two different bidentate ligands providing partial structures represented by present formulae (2) and (3) and having an aromatic substituent on at

least one of the cyclic groups of at least one of the ligands would be suitable for use in an organic electroluminescent device and would be capable of emitting light upon voltage across the electrodes of the organic electroluminescent device.

One of ordinary skill in the art at the time of the invention would have reasonably expected, for example, that compounds similar to compounds of formulae (1-15), (1-41), (1-51), (1-56), (1-59), (2-9), (2-11), (2-14), (2-15), (2-17) and (2-20) having an aromatic substituent on at least one of the cyclic groups of at least one of the ligands would be light-emissive compounds suitable for use in organic electroluminescent devices since Igarashi et al. clearly teach that the cyclic groups of the ligands may be substituted with an aromatic substituent.

One of ordinary skill in the art at the time of the invention would have reasonably expected, for example, that compounds similar to compounds of formulae (1-45) or (2-6) having a second (different) CyN-CyC type ligand in place of the acetylacetonate ligand would be light-emissive compounds suitable for use in organic electroluminescent devices since Igarashi et al. clearly teach that the compounds may comprise two different CyN-CyC type ligands. One of ordinary skill in the art also would have reasonably expected that a pyridynaphthyl ligand would be suitable for one of the two different CyN-CyC type ligands since Igarashi et al. disclose a compound having a pyridynaphthyl ligand.

9. Applicant's arguments filed December 22, 2003 have been fully considered but they are not persuasive with respect to the patentability of the present claims over Igarashi's published application.



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While Igarashi does not disclose a specific compound meeting the limitations of the present claims, Igarashi discloses specific compounds that are similar in chemical structure to the compounds of the present claims as set forth in the rejection. There is no evidence of record in the present application to demonstrate that the compounds required by the present claims provide superior/unexpected results compared to the closest prior art. The tables on pages 23-34 of the specification define various compounds, some of which meet the limitations of the present claims and some of which do not. However, none of the exemplary electroluminescent devices described in the specification utilize a compound meeting the limitations of the present claims. Absent a showing of superior/unexpected results commensurate in scope with the rejected claims, it is the examiner's position that the rejected claims are *prima facie* obvious in view of Igarashi's disclosure of compounds that are similar in chemical structure and taught for the same use as the present compounds.

10. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

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11. Claims 1, 2, 8, 9 and 12-14 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-4 and 11-16 of copending Application No. 10/073,011. Although the conflicting claims are not identical, they are not patentably distinct from each other because the metal coordination compound as defined in present claim 1 is generic for the species of compound of copending independent claim 1 in which a metal coordination compound has two mutually different bidentate ligands providing partial structures represented by formulae (2) and (3) wherein at least one of the cyclic groups of the ligands has a substituted aromatic cyclic group as a substituent (substituent "c") as defined in copending claim 1).

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

12. Claims 1, 2, 5, 8, 9 and 12-14 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 8-15, 21, 39, 41 and 44-47 of copending Application No. 10/073,012. Although the conflicting claims are not identical, they are not patentably distinct from each other because the metal coordination compound as defined in present claim 1 is generic for the species of compound of copending independent claims 1 and 41 in which at least one of the cyclic groups A and B (in formula (2) as defined in copending claims 1 and 41) has a substituent which is an alkyl group in which the methylene group directly bonded to the cyclic group is replaced by a divalent aromatic group.

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This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

13. Applicant is advised that should claim 1 be found allowable, claim 2 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. Applicant is advised that should claim 8 be found allowable, claim 9 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claims 2 and 9 do not further limit the subject matter of claims 1 and 8, respectively.

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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15. Any inquiry concerning this communication should be directed to Marie R. Yamnitzky at telephone number (571) 272-1531. The examiner works a flexible schedule but can generally be reached at this number from 6:30 a.m. to 4:00 p.m. Monday, Tuesday, Thursday and Friday, and every other Wednesday from 6:30 a.m. to 3:00 p.m.

The current fax number for Art Unit 1774 is (703) 872-9306 for all official faxes.  
(Unofficial faxes to be sent directly to examiner Yamnitzky can be sent to (571) 273-1531.)

MRY  
April 01, 2004



MARIE YAMNITZKY  
PRIMARY EXAMINER

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